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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of)	
)	
U.S. Patent No. 5,088,108 to)	Group Art Unit: 2603
)	
UDDENFELDT et al.)	Examiner: B. Safourek
)	
Serial No. 08/136,760)	
)	
Filed: October 15, 1993)	
)	
For: CELLULAR DIGITAL MOBILE)	
RADIO SYSTEM AND METHOD)	
OF TRANSMITTING INFORMATION)	
IN A DIGITAL CELLULAR)	
MOBILE RADIO SYSTEM)	

SUPPLEMENTAL DECLARATION IN SUPPORT OF REISSUE APPLICATION

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

We, Jan E. Uddenfeldt and Alex K. Raith, hereby declare as follows:

- (1) We are citizens of Sweden, having a post office address of c/o Telefonaktiebolaget L M Ericsson, S-126 25, Stockholm, Sweden.
- (2) We believe that we are the original, first inventors of the invention described and claimed in the United States Patent No. 5,088,108 and in the specification and the claims of the Reissue Application filed.
- (3) We have reviewed and understand the contents of the specification and the claims of the Reissue Application.

(4) We hereby claim the benefit of foreign priority under 35 U.S.C. § 119 with respect to Swedish Patent Application No. 8800698, filed on February 29, 1988.

(5) We acknowledge the duty to disclose information that we are aware of which is material to the examination of this Reissue Application in accordance with 37 C.F.R. § 1.56(a).

(6) We verily believe U.S. Patent No. 5,088,108 to be partially inoperative by reason of our having claimed less than we had the right to claim in said Letters Patent. The specific inoperability of the patent is discussed below in more detail relative to the changes made to original claim 10 and the newly added claims which broaden the scope of protection for the present invention.

(7) Claim 10 has been amended, at lines 4, 6, 14, 19 and 22 to provide proper antecedence by consistently referring to the cell of interest as "said at least one cell". The lack of consistency was pointed out by the Examiner in the Office Action dated 8/11/95 and was apparently caused by an oversight by the individuals prosecuting the application originally.

(8) Claim 10 has been amended at lines 14, 18 and 21 to refer to "said at least two base stations" to be consistent with the same reference originally found in line 5. This inconsistency was discovered by Applicants' representatives upon a more intensive study of claim 10 in response to the Official Action dated 8/11/95 and was apparently caused by an oversight by the individuals prosecuting the application originally.

(9) Claim 10 has been amended at line 7 to include the word "substantially" before the phrase "the same message information". Support for this amendment can be

found at column 5 (page 7), lines 29-30 of the application. This amendment corrects the error that the type of information being transmitted by the second of at least two base stations need not be identical to that transmitted by the first base station. This error was recognized by a member of the assignee's patent department during a review of the reissue claims subsequent to receipt of the Office Action of August 11, 1995. This error was apparently caused by an oversight by the individuals prosecuting the application originally.

(10) Claim 10 has been amended, at line 10, to change "no longer than" to --within a time related to--. This change has been made to correct the error that the modulation time interval was not claimed as broadly as the assignee and inventors had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(11) Claim 10 has been amended at line 13 to change "audio" to "radio". This error was pointed out by the Examiner in the Office Action dated August 11, 1995. This error was a typographical error which occurred during the prosecution of the original application.

(12) New claim 11 is a dependent claim which further describe features set forth in claim 10. Claim 11 recites that the "predetermined time interval is a few times greater than said propagation time". This description of the modulation time interval was not recited in the original patent claims. This error was discovered during a review of the

patent claims by a member of the assignee's patent department on or about April 1993.

This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(13) New claim 12, as amended hereby, recites that the "at least two base stations associated with a cell are both located within said at least one cell". None of the original patent claims specified the location of the at least two base stations in this manner.

Accordingly, this claim is presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993 and was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(14) New claim 13 recites a cellular mobile radio system for communicating message information within a geographic area that is divided into communication cells. The recited cellular mobile radio system comprises a plurality of base stations for transmitting radio signals into a cell, which signals are digitally encoded with substantially the same message information and are transmitted at the same frequency and substantially simultaneously with one another. Each base station includes means for digitally encoding the radio signals with message information, which encoding is carried out with modulation time intervals which are at most a few times greater than a time required for audio signals to propagate a distance corresponding to a diameter of the cell. Also recited is a plurality of mobile stations each having means for reconstructing the digital encoding

of plural corresponding radio signals respectively received over the same frequency during a reception time interval from the plurality of base stations, wherein the reception time interval is at least as long as the time required for radio signals to propagate a distance corresponding to the diameter of the cell.

(15) Claim 13 has been presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of encoding with modulation time intervals "which are at most several times greater than a time required for audio signals to propagate a distance corresponding to a diameter of said cell" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at column 10, lines 10 and 11. Instead, claims in the original patent only specified modulation time intervals "which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "no longer than the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). Hence, claim 13 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the

individuals who originally prosecuted the application to appreciate the full scope of the invention.

(16) New claim 14 recites a cellular mobile radio system for communicating message information and having a plurality of cells. The recited cellular mobile radio system comprises a first base station for transmitting a first signal having message information into a cell, a second base station for transmitting a second signal having the message information into a cell, a mobile station in the cell that has means for receiving the first and second signals, wherein the first and second signals are received with a propagation delay therebetween. Both of the recited first and second base stations include means for encoding the first and second signals, respectively, with the message information using a modulation time interval which is no longer than a few multiples of said propagation delay. The recited mobile station includes means for reconstruction the first and second signals during a reception time interval which is at least as long as the propagation delay.

(17) Claim 14 has been presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. For example, the recitation of encoding the first and second signals with the message information using a modulation time interval "which is no longer than a few multiples of said propagation delay" was not specifically claimed in the original patent, although it is supported in the patent specification at, for example, column 10, lines 10 and 11. Claims in the original patent only specified modulation time intervals "which are shorter than the time required for radio signals to propagate a

distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "no longer than the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). Hence, claim 14 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(18) New claim 15 is a dependent claim which further describes features set forth in claim 10. Claim 15 recites that the time interval of claim 10 is "less than to a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. The modulation time interval was not originally claimed using this language. Hence, claim 15 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(19) Claim 16 recites a time interval "no longer" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. Thus, this claim provides the original language of claim 10 in dependent form. Hence, claim 16 further points out that amended claim 10 is a broader recitation of the invention than that of original claim 10. The error of not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(20) Claim 17 recites a time interval "a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. This claim provides another example of what is meant by the general phrase used in amended claim 10. The error of not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(21) New claim 18 recites a cellular mobile radio system for communicating message information across an area of coverage. The recited cellular mobile radio system comprises a plurality of cells, each of the plurality of cells representing a geographic division of said area of coverage; a first base station for transmitting a first signal including message information into at least one of the plurality of cells, the first base

station including means for modulating a radio carrier with the message information; a second base station for transmitting a second signal, including substantially the same message information as transmitted by the first base station, into at least one of the plurality of cells, the second base station including means for modulating the radio carrier with substantially the same message information; and at least one mobile station located within at least one of the plurality of the cells wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few times greater than said difference in radio propagation delays, the one mobile station further including means for recovering the message information from the first and the second signals during a reception time interval which reception time interval is greater than the time shift.

(22) Claim 18 has been presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. Specifically, the original claims did not refer to a mobile station wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few

times greater than said difference in radio propagation delays, the one mobile station further including means for recovering the message information from the first and the second signals during a reception time interval which reception time interval is greater than the time shift, without also discussing other features, such as the modulation time interval employed by the base stations. Hence, claim 18 is believed to be broader than the originally filed claims. The original patent is also submitted to be partially inoperative for failing to include a claim of this scope. This error was discovered during a review of the patent claims by a member of the assignee's patent department after the Official Action dated August 8, 1995 and was caused by a failure of the individuals who prosecuted the original application to appreciate the full scope of the invention.

(23) New claim 19 is a dependent claim which further describes features set forth in claim 18. Claim 19 recites that the time shift is intentionally introduced in the transmission of the first signal and the second signal. Claim 20 is dependent on claim 19 and recites that the first and second base stations include means for shifting the transmission times of the first and the second signals. These claims are provided to correct the error that claims of this scope were not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department after review of the Office Action dated August 8, 1995 and was caused by a failure of the individuals who prosecuted the original application to appreciate the full scope of the invention.

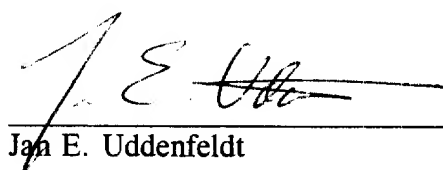
(24) Each of the foregoing errors arose without any deceptive intention on the part of the undersigned.

(25) The undersigned declare further that all statements made herein are of our own knowledge and are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE:

Jan 29, 1996

DATE: _____



Jan E. Uddenfeldt

Alex K. Raith

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Telefonaktiebolaget L M Ericsson, S-126 25, Stockholm, Sweden.
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described and claimed in the United States Patent No. 5,088,108 and in the specification
and the claims of the Reissue Application filed.
- (3) We have reviewed and understand the contents of the specification and the
claims of the Reissue Application.

(4) We hereby claim the benefit of foreign priority under 35 U.S.C. § 119 with respect to Swedish Patent Application No. 8800698, filed on February 29, 1988.

(5) We acknowledge the duty to disclose information that we are aware of which is material to the examination of this Reissue Application in accordance with 37 C.F.R. § 1.56(a).

(6) We verily believe U.S. Patent No. 5,088,108 to be partially inoperative by reason of our having claimed less than we had the right to claim in said Letters Patent. The specific inoperability of the patent is discussed below in more detail relative to the changes made to original claim 10 and the newly added claims which broaden the scope of protection for the present invention.

(7) Claim 10 has been amended, at lines 4, 6, 14, 19 and 22 to provide proper antecedence by consistently referring to the cell of interest as "said at least one cell". The lack of consistency was pointed out by the Examiner in the Office Action dated 8/11/95 and was apparently caused by an oversight by the individuals prosecuting the application originally.

(8) Claim 10 has been amended at lines 14, 18 and 21 to refer to "said at least two base stations" to be consistent with the same reference originally found in line 5. This inconsistency was discovered by Applicants' representatives upon a more intensive study of claim 10 in response to the Official Action dated 8/11/95 and was apparently caused by an oversight by the individuals prosecuting the application originally.

(9) Claim 10 has been amended at line 7 to include the word "substantially" before the phrase "the same message information". Support for this amendment can be

found at column 5 (page 7), lines 29-30 of the application. This amendment corrects the error that the type of information being transmitted by the second of at least two base stations need not be identical to that transmitted by the first base station. This error was recognized by a member of the assignee's patent department during a review of the reissue claims subsequent to receipt of the Office Action of August 11, 1995. This error was apparently caused by an oversight by the individuals prosecuting the application originally.

(10) Claim 10 has been amended, at line 10, to change "no longer than" to "--within a time related to--". This change has been made to correct the error that the modulation time interval was not claimed as broadly as the assignee and inventors had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(11) Claim 10 has been amended at line 13 to change "audio" to "radio". This error was pointed out by the Examiner in the Office Action dated August 11, 1995. This error was a typographical error which occurred during the prosecution of the original application.

(12) New claim 11 is a dependent claim which further describe features set forth in claim 10. Claim 11 recites that the "predetermined time interval is a few times greater than said propagation time". This description of the modulation time interval was not recited in the original patent claims. This error was discovered during a review of the

patent claims by a member of the assignee's patent department on or about April 1993.

This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(13) New claim 12, as amended hereby, recites that the "at least two base stations associated with a cell are both located within said at least one cell". None of the original patent claims specified the location of the at least two base stations in this manner.

Accordingly, this claim is presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993 and was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(14) New claim 13 recites a cellular mobile radio system for communicating message information within a geographic area that is divided into communication cells. The recited cellular mobile radio system comprises a plurality of base stations for transmitting radio signals into a cell, which signals are digitally encoded with substantially the same message information and are transmitted at the same frequency and substantially simultaneously with one another. Each base station includes means for digitally encoding the radio signals with message information, which encoding is carried out with modulation time intervals which are at most a few times greater than a time required for audio signals to propagate a distance corresponding to a diameter of the cell. Also recited is a plurality of mobile stations each having means for reconstructing the digital encoding

of plural corresponding radio signals respectively received over the same frequency during a reception time interval from the plurality of base stations, wherein the reception time interval is at least as long as the time required for radio signals to propagate a distance corresponding to the diameter of the cell.

(15) Claim 13 has been presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of encoding with modulation time intervals "which are at most several times greater than a time required for audio signals to propagate a distance corresponding to a diameter of said cell" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at column 10, lines 10 and 11. Instead, claims in the original patent only specified modulation time intervals "which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "no longer than the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). Hence, claim 13 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the

individuals who originally prosecuted the application to appreciate the full scope of the invention.

(16) New claim 14 recites a cellular mobile radio system for communicating message information and having a plurality of cells. The recited cellular mobile radio system comprises a first base station for transmitting a first signal having message information into a cell, a second base station for transmitting a second signal having the message information into a cell, a mobile station in the cell that has means for receiving the first and second signals, wherein the first and second signals are received with a propagation delay therebetween. Both of the recited first and second base stations include means for encoding the first and second signals, respectively, with the message information using a modulation time interval which is no longer than a few multiples of said propagation delay. The recited mobile station includes means for reconstruction the first and second signals during a reception time interval which is at least as long as the propagation delay.

(17) Claim 14 has been presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. For example, the recitation of encoding the first and second signals with the message information using a modulation time interval "which is no longer than a few multiples of said propagation delay" was not specifically claimed in the original patent, although it is supported in the patent specification at, for example, column 10, lines 10 and 11. Claims in the original patent only specified modulation time intervals "which are shorter than the time required for radio signals to propagate a

distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "no longer than the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). Hence, claim 14 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(18) New claim 15 is a dependent claim which further describes features set forth in claim 10. Claim 15 recites that the time interval of claim 10 is "less than to a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. The modulation time interval was not originally claimed using this language. Hence, claim 15 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(19) Claim 16 recites a time interval "no longer" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. Thus, this claim provides the original language of claim 10 in dependent form. Hence, claim 16 further points out that amended claim 10 is a broader recitation of the invention than that of original claim 10. The error of not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(20) Claim 17 recites a time interval "a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. This claim provides another example of what is meant by the general phrase used in amended claim 10. The error of not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(21) New claim 18 recites a cellular mobile radio system for communicating message information across an area of coverage. The recited cellular mobile radio system comprises a plurality of cells, each of the plurality of cells representing a geographic division of said area of coverage; a first base station for transmitting a first signal including message information into at least one of the plurality of cells, the first base

station including means for modulating a radio carrier with the message information; a second base station for transmitting a second signal, including substantially the same message information as transmitted by the first base station, into at least one of the plurality of cells, the second base station including means for modulating the radio carrier with substantially the same message information; and at least one mobile station located within at least one of the plurality of the cells wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few times greater than said difference in radio propagation delays, the one mobile station further including means for recovering the message information from the first and the second signals during a reception time interval which reception time interval is greater than the time shift.

(22) Claim 18 has been presented to correct the error that a claim of this scope was not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. Specifically, the original claims did not refer to a mobile station wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few

times greater than said difference in radio propagation delays, the one mobile station further including means for recovering the message information from the first and the second signals during a reception time interval which reception time interval is greater than the time shift, without also discussing other features, such as the modulation time interval employed by the base stations. Hence, claim 18 is believed to be broader than the originally filed claims. The original patent is also submitted to be partially inoperative for failing to include a claim of this scope. This error was discovered during a review of the patent claims by a member of the assignee's patent department after the Official Action dated August 8, 1995 and was caused by a failure of the individuals who prosecuted the original application to appreciate the full scope of the invention.

(23) New claim 19 is a dependent claim which further describes features set forth in claim 18. Claim 19 recites that the time shift is intentionally introduced in the transmission of the first signal and the second signal. Claim 20 is dependent on claim 19 and recites that the first and second base stations include means for shifting the transmission times of the first and the second signals. These claims are provided to correct the error that claims of this scope were not presented in the original application and, thus, the assignee and inventors claimed less than they had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department after review of the Office Action dated August 8, 1995 and was caused by a failure of the individuals who prosecuted the original application to appreciate the full scope of the invention.

(24) Each of the foregoing errors arose without any deceptive intention on the part of the undersigned.

(25) The undersigned declare further that all statements made herein are of our own knowledge and are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Jan E. Uddenfeldt

DATE: Feb. 1, '96

Alex K. Raith
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